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Mr. Alvan Clark's New Micrometer for measuring large Distances.

At the monthly meeting of the Society in June, Mr. Alvan Clark, of Boston, U.S., exhibited a micrometer invented by himself, which is capable of measuring with accuracy any distance up to about one degree. It is also furnished with a position-circle. Its character is essentially the same as that of the parallel-wire micrometer; but it has some peculiarities not, it is believed, previously introduced, and on which its wide range depends.

The most remarkable of these peculiarities consists in its being furnished with *two eye-pieces*, composed of small single lenses, mounted in separate frames, which slide in a groove, and can be separated to the required distance. A frame carrying two parallel spider-lines, each mounted separately with its own micrometer-screw, slides in a dove-tailed groove in front of the eye-pieces; and, by a free motion in this frame, each web can be brought opposite to its own eye-lens.

In using this micrometer, the first step is, to set the position-vernier to the approximate position of the objects to be measured. Then the eye-lenses are separated till each is opposite to its own object. The frame containing the webs and their micrometer-screws is then slidden into its place; and, the webs having been separated nearly to their proper distance by their free motion in the frame, they are placed precisely on the objects by their fine screws, the observer's eye being carried rapidly from one eye-lens to the other a few times, till he is satisfied of the bisection of each of the objects by its own web. The frame is then removed for reading off the measure by means of an achromatic microscope, on the stage of which it is placed. One of the webs is brought to the intersection of cross-wires in the eye-piece of the microscope; and by turning a screw (the revolutions of which are counted), the frame travels before the microscope, and the other web is brought to the intersection of the cross-wires. The *parts* of a revolution are read off by a vernier from a large divided circle attached to the screw.

The advantages arising from the peculiar construction of this micrometer are the following:—

1. Distances can be observed with great accuracy up to about *one degree*, and the angles of position also.

2. The webs, being in the same plane, are free from parallax, and are both equally distinct, however high the magnifying power may be.

3. The webs are also free from distortion and from colour.

4. A different magnifying power may be used on each of the objects; which may be advantageous in comparing a faint comet with a star.

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MISCELLANEOUS INTELLIGENCE.

Professor Wolf of Zurich has recently published his eighth chapter or tract (*Mittheilung*) on the subject of the solar spots. He states that whereas in the year 1852 he had only materials at his command for tracing back the history of solar action through 12 epochs of maximum or minimum energy, the kind communications of friends and his own continued private research have so far added to his stock of examined records that he now counts up 32 cases of established epochs. In the present tract Professor Wolf gives the results of his examination of the MSS. observations of C. Tevel, a silversmith of Middelburg, in the years 1816, 17, 18, 19, 24 and 25, which were brought under his notice by Dr. Buys-Ballot of Utrecht. It appears that from the paucity of spots in the years '24 and '25 Tevel's interest in the subject was so far diminished that he discontinued his journal, and only resumed it again in the year 1828 with much less energy, from which time occur occasional notes as far as the year 1836. Another and smaller series of records here examined are those of an observer named De Hagen, brought under Prof. Wolf's notice by Herr Wagner of Pulkova. The observations were taken between the years 1739 and 1751. At the end of the tract Professor Wolf adds that in consequence of his perusal of Mr. Carrington's paper on the distribution in latitude of the solar spots during the years 1854 to 1858, he was led to specially arrange the results of Dr. Böhm of Vienna for the years 1833 to 1836, in order to see if any similar change of distribution occurred at or about the minimum of 1833. The result of his research is that such a change did occur at that time, and that the extremes of latitude for those years may be taken to have been as follows :—

	1833.	1834.	1835.	1836.
Latitude	± 10°	± 25°	± 22°·6	± 16°·7

apparently offering a very precisely corresponding instance to that first pointed out by Mr. Carrington. Dr. Böhm's observations, it may be added, were treated with a degree of skill and knowledge of the subject which entitles them to full confidence. [R.C.C.]

Professor Secchi, in a recent letter to one of the Secretaries, mentions that the observations of the solar disk made at Rome since the month of July 1858, so far as he has as yet examined, indicate that the limiting parallels for the faculæ correspond pretty closely to those for the dark spots. A clear climate, such as that of Rome, is necessary for this research, which it is to be hoped Prof. Secchi will be induced to pursue.

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